

HOW TO... Create charts in Excel

When you need to make a point, it's not enough to list facts and figures. A chart helps you present the details in a clear and immediate way, as Rod Lawton explains

People don't relate to lists of numbers. Show them a table of figures and they may nod and agree, but the information won't necessarily sink in. However, if you show them a chart of their sales figures plummeting through the floor, they are sure to sit up and take notice.

It's easy to create charts from data in Excel, but there are a couple of things you can do that will make a big difference to their effectiveness. The first is to choose the right type of chart. This will depend on whether you're trying to illustrate a trend, or the relative significance of different items. We will illustrate both types of chart in this walkthrough.

We've invented a scenario where a web development team is trying to persuade the company directors that it's time to invest more money in online promotions and e-commerce than traditional print media. However, you can use the same principles and techniques in a variety of situations. A chart will make a far more convincing case than any amount of impassioned pleading on your part.

Here we've used Excel 2003, but the process is similar in earlier versions.

1 To create a chart, you first need to assemble your data correctly in Excel. It needs to be in the form of a table, with a suitable column heading along the top (in this example, the columns represent trading years) and a row

heading down the side (to represent the response from print promotions versus the response from the company website). Don't leave gaps between the headings and the data itself, or between rows of data. It won't matter if you use a different font and size to make the headings stand out, as we've done here, and you can use whichever cell format you need to for the data. Our data refers to cash revenue, so we've used the Currency format; right-click on a cell or highlighted group of cells, select Format Cells, and then Currency on the Number tab. A copy of the table used here can be found on this month's cover CD.

2 Our data consists of two separate 'series'. One series shows the revenue over time from our fictional company's print promotions, and the other the revenue from the website. Incidentally, you are not limited to two data series. However, charts with multiple data series soon become too confusing to interpret properly.

Let's assume we simply want to chart the decreasing revenue from print promotions; this is a single data series. For this, we just need to select cells A1 to H2.

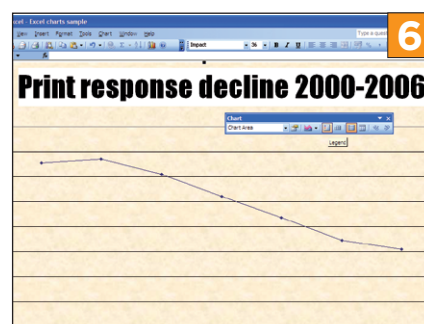
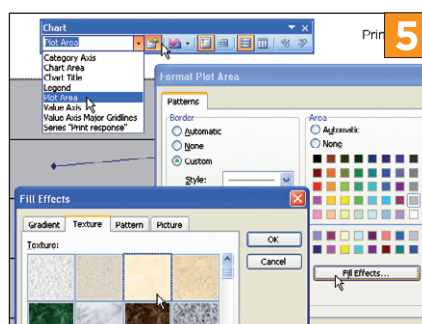
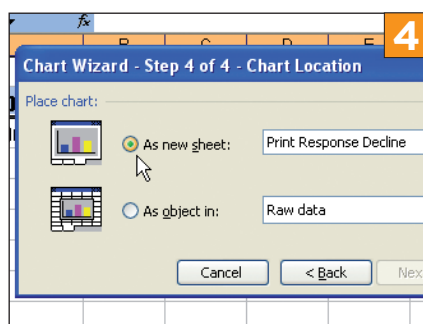
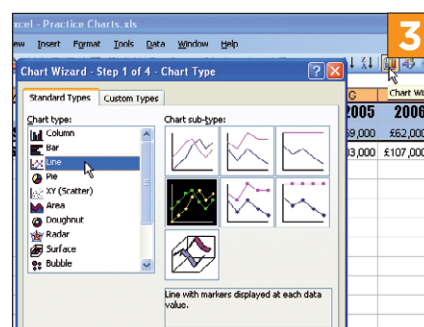
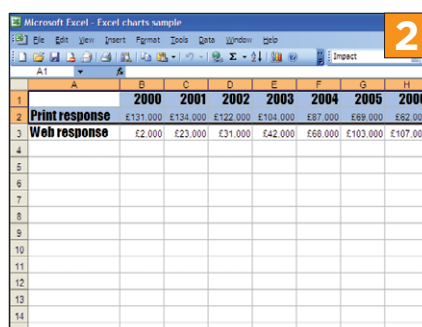
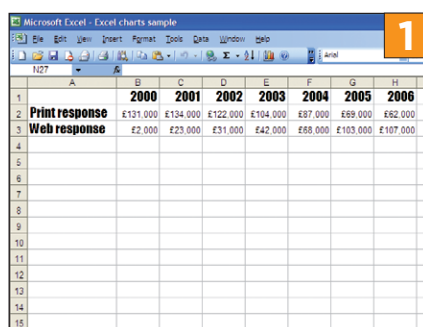
3 With those cells selected, click on the Chart Wizard button. This opens a four-step wizard, which starts by asking you what chart type you want. This isn't just a case of choosing the prettiest, because you have to

match the chart to the information. Here, we want to show a trend over time, and there are two chart types well suited to this. One is the column chart, also known as the vertical bar chart. The other, which we're using, is the classic line chart. Column charts are good for displaying known values at fixed intervals, whereas line charts are good at suggesting trends.

4 We haven't shown the second and third steps in the wizard because they're very straightforward. Step two previews the chart and prompts you to confirm the data range, but since that was selected before the wizard was started it doesn't need changing. In Step three, you can type in a new chart heading (the row title is used by default) and, if required, x and y axis labels. These can be modified directly on the chart itself once it's been generated, so they don't have to be right first time.

Step four prompts you to choose the chart location. You can either save it as an object on the same worksheet as the data or save it on a new worksheet, which is the option we're selecting. It's easier to swap between data and charts if you're doing a presentation; you can just click the appropriate worksheet tab rather than having to scroll around a big worksheet.

5 The finished chart appears immediately, though it might not be the most visually appealing graphic you've ever seen. Excel's



default chart designs are functional, if nothing else. But it is possible to customise them with your own choice of fonts and colours. This is done using the Chart toolbar, which appears automatically when you're working on charts. The pop-up menu at the left-hand side of the toolbar lists each chart object. To select an object, just choose it from the list; alternatively, you can click on it in the chart itself.

Now you can press the Format button immediately to the right of this menu to see the formatting options for that object. For example, we selected the dull grey 'Plot Area' and chose a more attractive texture fill. You can also change fills using the Drawing toolbar and you can change fonts with the Formatting toolbar. The Format dialog box offers additional options specific to charts and chart data.

6 It doesn't take long to make charts look more sophisticated. We have used the same texture fill for the Chart Area (the background for the whole chart graphic) as we chose for the Plot Area. We also typed a new and more informative chart title over the original and swapped the font for a bigger, bolder alternative (Impact, 36pt).

Because our chart shows only one data series, we do not need the Legend on the right telling us the name of the series. Don't simply delete this Legend box, though. Instead, click on the Legend button on the toolbar to toggle it on and off.

7 So far our walkthrough has been easy enough, but it's about to become a little more complicated. We want a chart that shows not just how the revenue from print promotions has declined but also how, at the same time, the revenue from the company website has rocketed. Showing one chart after another won't illustrate this very effectively, so we need to create a single chart with a line for each data series.

For this, we will need to go back to our original data. This time, though, we are going to select cells A1 to H3.

8 We are going to use a line chart again. As the revenue from print sales goes down, we can clearly see the rapid increase in web revenue. This time, however, we do need the Legend to the right of the chart. To change the font used in the Legend quickly, double-click on it and select the Font tab.

9 Unfortunately, this default chart design is not necessarily the best way of communicating our message. It doesn't tell us how our company's overall revenue is doing over time, for example. For this, we are going to need a different chart type. However, you don't have to delete the chart and go back to the beginning to start again. Instead, you can just click on the Chart Type button in the Chart toolbar and choose another type from the list.

We need to pick Area Chart. This kind of chart fills in the space below the lines (hence the term 'area'), but it also stacks the data series so that the top line shows our company's total revenue from both print and web media, while the colour-coded areas underneath give a graphical representation of how much the print and web media are contributing to this total. Our chart now shows us the overall revenue as well as how that revenue is split.

10 While you can change chart types after you've created them, you don't seem to get the full choice offered by the Chart Wizard. In this instance, we have decided that a stacked column chart would look better than our area chart, and for this we do need to go back to the original data and use the Chart Wizard again. The result looks much better, not only because this chart type is more appropriate for this kind of data but also because we've spent some time reformatting it.

The cylindrical appearance of the columns has been achieved simply by using a gradient fill. The width of the columns can be altered by

DID YOU KNOW?

You can cut and paste an Excel chart into a Word document and then click on the Paste Options icon to link the chart to the original data.

selecting either data series, pressing the Format button, going to the Options tab and changing the Gap width value. The smaller the gap, the wider the columns.

11 Area charts and stacked column charts go further by displaying total values, too. But there is another chart type that we can use to finish off our presentation: the pie chart. This also gives us an opportunity to demonstrate non-contiguous data selections.

Let's say we want to take the data from the year 2006 and display the proportion of the total revenue provided by print and web as a pie chart. We also need the row headings. The two lots of data we need are separated from each other on the spreadsheet. So highlight cells H1 to H3. Then, holding down the Ctrl key, highlight cells A1 to A3.

12 By including the row headings, we've made sure that Excel generates the legend for our pie chart automatically. But what it doesn't do is tell us the figures; it only displays them graphically as pie segments. To put that right, select the data series (there is only one this time) from the pop-up menu on the Chart toolbar, click on the Format button and choose the Data Labels tab. Select the boxes marked Series name, Category name, Value and Percentage. This displays all the information we want, alongside the relevant pie slices. We can dispense with the Legend now.

You may sometimes find that the pie itself is a little small within the Chart Area. To fix this, select the Plot Area and drag its corner handles outwards. If you attempt to drag the pie from its centre, you'll find that you can create an 'exploded' pie where the slices are moved apart. This can make the chart easier to grasp, especially if there are lots of smaller slices. It will work well if you switch to a 3D pie chart, too.

